

APPLICANT(S): LI, Yingxue et al.
SERIAL NO.: 10/737,012
FILED: December 16, 2003
Page 2

AMENDMENTS TO THE CLAIMS

Please add or amend the claims to read as follows, and cancel without prejudice or disclaimer to resubmission in a divisional or continuation application claims indicated as cancelled:

1. (Currently Amended) A method for adjusting a signal for transmission at a mobile communication device, comprising:

converting a baseband transmission signal to a radio frequency (RF) signal;

receiving a plurality of signals said RF signal at an adjuster of said mobile communication device;

producing a plurality of RF transmit signals based on said RF signal;

determining one or more quality indicators, the one or more quality indicators comprising ~~[[as]]~~ at least one of a power control group boundary signal, a power control group index, a PN code per active finger, a reverse power control bit per active finger, an energy per chip over noise power spectral density ratio per active finger, a channel estimate I/Q per active finger, an energy per bit over noise power spectral density, a transmit AGC signal, and a total receive power, and any combination of the preceding;

establishing a transmit signal adjustment according to the one or more quality indicators; ~~[[and]]~~

separately adjusting at said transmit adjuster at least one of the plurality of RF transmit signals according to the signal adjustment to yield one or more adjusted RF transmit signals; and

transmitting said adjusted RF transmit signals on a respective plurality of antennas elements.

2. (Currently Amended) The method of Claim 1, wherein:

~~the plurality of signals comprise a plurality of signals received at a mobile device; and~~

APPLICANT(S): LI, Yingxue et al.
SERIAL NO.: 10/737,012
FILED: December 16, 2003
Page 3

the one or more quality indicators comprise at least one of a power control group boundary signal, a power control group index, a PN code per active finger, an energy per chip over noise power spectral density ratio per active finger, a channel estimate I/Q per active finger, an energy per bit over noise power spectral density, and a total receive power,~~and any combination of the preceding.~~

3. **(Currently Amended)** The method of Claim 1, wherein:

the plurality of signals comprise a plurality of signals transmitted to ~~[[from]]~~ a ~~mobile device~~ base station; and

the one or more quality indicators comprise at least one of a power control group boundary signal, a PN code per active finger, a reverse power control bit per active finger, an energy per chip over noise power spectral density ratio per active finger, a channel estimate I/Q per active finger, a transmit AGC signal, and a total receive power,~~and any combination of the preceding.~~

4. **(Original)** The method of Claim 1, wherein determining the one or more quality indicators further comprises receiving the one or more quality indicators from a baseband processor.

5. **(Currently Amended)** The method of Claim 1, wherein determining the one or more quality indicators further comprises calculating the one or more quality indicators according to ~~[[the]]~~ a plurality of received RF signals.

6. **(Currently Amended)** The method of Claim 1, wherein determining the one or more quality indicators further comprises generating a reverse power control bit according to the transmit AGC signal.

7. **(Currently Amended)** The method of Claim 1, wherein adjusting at least one of the plurality of RF transmit signals according to the signal adjustment to yield the one or more

APPLICANT(S): LI, Yingxue et al.
SERIAL NO.: 10/737,012
FILED: December 16, 2003
Page 4

adjusted RF transmit signals further comprises adjusting at least one of a phase and an amplitude of at least one signal of the plurality of RF transmit signals.

8. (Currently Amended) A system mobile communication device for adjusting a signal, ~~comprising an adjuster~~ comprising:

a transmit converter for converting a baseband transmit signal to a radio frequency (RF) transmit signal;

[[an]] a transmit adjuster interface operable to receive a plurality of signals said RF transmit signal from said transmit converter and produce a plurality of RF transmit signals based on said RF signal; and

control logic coupled to the transmit adjuster interface and operable to:

determine one or more quality indicators based on a received RF signal, the one or more quality indicators comprising [[as]] at least one of a power control group boundary signal, a power control group index, a PN code per active finger, a reverse power control bit per active finger, an energy per chip over noise power spectral density ratio per active finger, a channel estimate I/Q per active finger, an energy per bit over noise power spectral density, a transmit AGC signal, and a total receive power, and any combination of the preceding;

establish a signal adjustment according to the one or more quality indicators; and adjust the plurality of signals according to the signal adjustment to yield one or more adjusted signals, wherein said transmit adjuster is to separately adjust at least one of said RF transmit signals according to the signal adjustment to yield a respective one or more adjusted RF signals;

a plurality of antenna elements connected to said transmit adjuster for transmitting said plurality of RF transmit signals, respectively.

9. (Currently Amended) The system of Claim 8, wherein:

~~the plurality of signals comprise a plurality of signals received at a mobile device; and~~

the one or more quality indicators comprise at least one of a power control group boundary signal, a power control group index, a PN code per active finger, an energy per chip over noise power spectral density ratio per active finger, a channel estimate I/Q per active finger, an energy per bit over noise power spectral density, and a total receive power, ~~and any combination of the preceding.~~

10. (Currently Amended) The system of Claim 8, wherein:

the plurality of signals comprise a plurality of signals transmitted to [[from]] a ~~mobile device~~ base station from a mobile device; and

the one or more quality indicators comprise at least one of a power control group boundary signal, a PN code per active finger, a reverse power control bit per active finger, an energy per chip over noise power spectral density ratio per active finger, a channel estimate I/Q per active finger, a transmit AGC signal, and a total receive power, ~~and any combination of the preceding.~~

11. (Original) The system of Claim 8, further comprising a baseband processor operable to provide the one or more quality indicators to the adjuster.

12. (Currently Amended) The system of Claim 8, the control logic further operable to determine the one or more quality indicators by calculating the one or more quality indicators according to the received RF signal ~~plurality of signals.~~

13. (Original) The system of Claim 8, the control logic further operable to determine the one or more quality indicators by generating a reverse power control bit according to the transmit AGC signal.

14. (Currently Amended) The system of Claim 8, the control logic further operable to adjust the plurality of signals according to the signal adjustment to yield the one or more

APPLICANT(S): LI, Yingxue et al.
SERIAL NO.: 10/737,012
FILED: December 16, 2003
Page 6

adjusted signals by adjusting at least one of a phase and an amplitude of at least one signal of the plurality of RF transmit signals.

15. (Currently Amended) Logic for adjusting a signal, the logic embodied in a medium and operable to:

receive an RF signal for transmission by a mobile communication device ~~a plurality of signals at an adjuster;~~

produce a plurality of RF transmit signals based on said RF signal;

determine one or more quality indicators based on a received RF signal received at said mobile communication device, the one or more quality indicators comprising ~~[[as]]~~ at least one of a power control group boundary signal, a power control group index, a PN code per active finger, a reverse power control bit per active finger, an energy per chip over noise power spectral density ratio per active finger, a channel estimate I/Q per active finger, an energy per bit over noise power spectral density, a transmit AGC signal, and a total receive power, ~~and any combination of the preceding;~~

establish a transmit signal adjustment according to the one or more quality indicators; and

separately adjust at least one of the plurality of RF transmit signals according to the signal adjustment to yield a respective one or more adjusted RF transmit signals.

16. (Currently Amended) The logic of Claim 15, wherein:

~~the plurality of signals comprise a plurality of signals received at a mobile device; and~~

the one or more quality indicators comprise at least one of a power control group boundary signal, a power control group index, a PN code per active finger, an energy per chip over noise power spectral density ratio per active finger, a channel estimate I/Q per active finger, an energy per bit over noise power spectral density, and a total receive power, ~~and any combination of the preceding.~~

17. **(Currently Amended)** The logic of claim 15, wherein said logic is to further:
receive RF receive signals from a base station the plurality of signals comprise a
plurality of signals transmitted from a mobile device; and
wherein the one or more quality indicators are based on said RF receive signals, and
said quality indicators comprise at least one of a power control group boundary
signal, a PN code per active finger, a reverse power control bit per active finger,
an energy per chip over noise power spectral density ratio per active finger, a
channel estimate I/Q per active finger, a transmit AGC signal, and a total receive
power, and any combination of the preceding.
18. **(Original)** The logic of Claim 15, further operable to determine the one or more
quality indicators by receiving the one or more quality indicators from a baseband processor.
19. **(Currently Amended)** The logic of Claim 15, further operable to determine the one
or more quality indicators by calculating the one or more quality indicators according to
[[the]] a plurality of received RF signals.
20. **(Original)** The logic of Claim 15, further operable to determine the one or more
quality indicators by generating a reverse power control bit according to the transmit AGC
signal.
21. **(Original)** The logic of Claim 15, further operable to adjust the plurality of signals
according to the signal adjustment to yield the one or more adjusted signals by adjusting at
least one of a phase and an amplitude of at least one signal of the plurality of signals.

APPLICANT(S): LI, Yingxue et al.
SERIAL NO.: 10/737,012
FILED: December 16, 2003
Page 8

22. **(Currently Amended)** A mobile communication device ~~An apparatus for adjusting a signal,~~ comprising:

means for converting a baseband transmission signal to a radio frequency (RF)

transmit signal;

means for producing receiving a plurality of RF transmit signals at an adjuster based on said RF signal;

means for determining one or more quality indicators, the one or more quality indicators comprising [[as]] at least one of a power control group boundary signal, a power control group index, a PN code per active finger, a reverse power control bit per active finger, an energy per chip over noise power spectral density ratio per active finger, a channel estimate I/Q per active finger, an energy per bit over noise power spectral density, and a total receive power, and any combination of the preceding;

means for establishing a transmit signal adjustment according to the one or more quality indicators; and

means for separately adjusting one or more of the plurality of RF transmit signals according to the signal adjustment to yield respective one or more adjusted RF transmit signals.

23. **(Cancelled)**

24. **(Currently Amended)** A method for adjusting a signal, comprising:

converting a baseband transmission signal to a radio frequency (RF) signal;

producing a plurality of RF transmit signals based on said RF signal;

receiving [[a]] said plurality of RF transmit signals at an adjuster of said mobile communication device;

determining one or more quality indicators by performing at least one of:

calculating at least some of the one or more quality indicators; and
receiving at least some of the one or more quality indicators from an
alternative source to a baseband processor;
establishing a transmit signal adjustment according to the one or more quality
indicators; and
separately adjusting one or more of the plurality of RF transmit signals according to
the signal adjustment to yield one or more adjusted RF transmit signals.

25. (Original) The method of Claim 24, wherein calculating at least some of the one or more quality indicators further comprises:

receiving signal quality information; and
generating the at least some of the one or more quality indicators according to the
signal quality information.

26. (Original) The method of Claim 24, wherein calculating at least some of the one or more quality indicators further comprises:

receiving a transmit automatic gain control signal; and
generating the at least some of the one or more quality indicators according to the
transmit automatic gain control signal.

27. (Currently Amended) The method of Claim 24, wherein the one or more quality indicators comprise ~~[[as]]~~ at least one of a power control group boundary signal, a power control group index, a PN code per active finger, a reverse power control bit per active finger, an energy per chip over noise power spectral density ratio per active finger, a channel estimate I/Q per active finger, an energy per bit over noise power spectral density, a transmit AGC signal, a total receive power, ~~and any combination of the preceding.~~

28. **(Currently Amended)** A system for adjusting a signal, comprising an adjuster,
wherein said adjuster comprises comprising:

an interface operable to receive a radio frequency (RF) signal ~~plurality of signals~~; and
control logic coupled to the interface and operable to:

determine one or more quality indicators by performing at least one of:

calculate at least some of the one or more quality indicators; and

receive at least some of the one or more quality indicators from an alternative
source to a baseband processor;

establish a signal adjustment according to the one or more quality indicators;

[[and]]

produce a plurality of RF transmit signals based on said RF signal; and

separately adjust one or more of the plurality of RF transmit signals according to
the signal adjustment to yield a plurality of one or more adjusted RF transmit
signals.

29. **(Original)** The system of Claim 28, the control logic operable to calculate at least
some of the one or more quality indicators by:

receiving signal quality information; and

generating the at least some of the one or more quality indicators according to the
signal quality information.

30. **(Original)** The system of Claim 28, the control logic operable to calculate at least
some of the one or more quality indicators by:

receiving a transmit automatic gain control signal; and

generating the at least some of the one or more quality indicators according to the
transmit automatic gain control signal.

31. (Currently Amended) The system of Claim 28, wherein the one or more quality indicators comprise ~~[[as]]~~ at least one of a power control group boundary signal, a power control group index, a PN code per active finger, a reverse power control bit per active finger, an energy per chip over noise power spectral density ratio per active finger, a channel estimate I/Q per active finger, an energy per bit over noise power spectral density, a transmit AGC signal, a total receive power, ~~and any combination of the preceding.~~

32. (Currently Amended) Logic for adjusting a signal, the logic embodied in a medium and operable to:

receive a radio frequency (RF) signal plurality of signals;

produce a plurality of RF transmit signals based on said RF signal;

determine one or more quality indicators by performing at least one of:

calculating at least some of the one or more quality indicators; and

receiving at least some of the one or more quality indicators from an
alternative source to a baseband processor;

establish a signal adjustment according to the one or more quality indicators; and

separately adjust one or more of the plurality of RF transmit signals according to the
signal adjustment to yield ~~one or more~~ a plurality of adjusted RF transmit signals.

33. (Original) The logic of Claim 32, further operable to calculate at least some of the one or more quality indicators by:

receiving signal quality information; and

generating the at least some of the one or more quality indicators according to the
signal quality information.

34. (Original) The logic of Claim 32, further operable to calculate at least some of the one or more quality indicators by:

receiving a transmit automatic gain control signal; and

generating the at least some of the one or more quality indicators according to the transmit automatic gain control signal.

35. (Currently Amended) The logic of Claim 32, wherein the one or more quality indicators comprise ~~[[as]]~~ at least one of a power control group boundary signal, a power control group index, a PN code per active finger, a reverse power control bit per active finger, an energy per chip over noise power spectral density ratio per active finger, a channel estimate I/Q per active finger, an energy per bit over noise power spectral density, a transmit AGC signal, a total receive power, ~~and any combination of the preceding.~~

36. (Currently Amended) A mobile communication system for adjusting a signal, comprising:

an antenna system comprising a plurality of antennas operable to receive and transmit a plurality of received and transmitted RF signals, respectively;

one or more receive adjusters operable to:

receive said plurality of RF signals received at said plurality of antennas;

determine one or more quality indicators based on said plurality of received RF signals;

establish a signal adjustment according to the one or more quality indicators;
[[and]]

adjust at least some of the plurality of received RF signals according to the signal adjustment; and

combine said plurality of adjusted received RF signals to yield a combined adjusted RF signal;

APPLICANT(S): LI, Yingxue et al.
SERIAL NO.: 10/737,012
FILED: December 16, 2003
Page 13

one or more receive converters operable to convert a frequency of the ~~plurality of signals~~ combined adjusted RF signal to a baseband frequency to obtain a combined baseband receive signal; and

one or more transmit converters operable to convert a frequency of a baseband transmit signal from baseband frequency to a radio frequency, thereby producing an RF signal for transmission;

one or more transmit adjusters operable to:

receive said RF signal for transmission;

produce a plurality of RF transmit signals based on said RF signal for transmission;

adjust at least one of the plurality of RF transmit signals according to the signal adjustment to produce at least one adjusted RF transmit signal; and

provide said plurality of RF transmit signals to said antenna system;

a baseband processor operable to receive and process the plurality of signals combined baseband receive signal and to produce said baseband transmit signal.

37. (Currently Amended) The system of Claim 36, wherein the baseband processor is operable to provide at least some of the one or more quality indicators to the one or more transmit and receive adjusters.

38. (Currently Amended) The system of Claim 36, wherein at least one of the one or more transmit and receive adjusters is operable to generate at least some of the one or more quality indicators.

39. (Currently Amended) The system of Claim 36, further comprising an alternate source operable to provide at least some of the one or more quality indicators to the one or more transmit and receive adjusters.

APPLICANT(S): LI, Yingxue et al.
SERIAL NO.: 10/737,012
FILED: December 16, 2003
Page 14

40. (Currently Amended) The system of Claim 36, wherein the one or more quality indicators comprise ~~[[as]]~~ at least one of a power control group boundary signal, a power control group index, a PN code per active finger, a reverse power control bit per active finger, an energy per chip over noise power spectral density ratio per active finger, a channel estimate I/Q per active finger, an energy per bit over noise power spectral density, a transmit AGC signal, and a total receive power, ~~and any combination of the preceding.~~

41. (Cancelled)

42. (Currently Amended) The system of Claim 36, wherein:

the baseband processor is operable to provide at least some of the one or more quality indicators to the one or more transmit and receive adjusters;

~~the one or more adjusters comprises a transmit adjuster operable to:~~

~~adjust one or more transmit signals of the plurality of signals; and~~

~~provide the one or more transmit signals to the antenna system; and~~

~~the one or more adjusters comprises a receive adjuster operable to:~~

~~receive one or more receive signals of the plurality of signals from the antenna system; and~~

~~adjust the one or more receive signals.~~

43. (Currently Amended) The system of Claim 36, wherein the ~~one or more adjusters~~ comprises a transmit adjuster is operable to:

determine one or more quality indicators by performing at least one of:

calculate at least some of the one or more quality indicators; and

APPLICANT(S): LI, Yingxue et al.
SERIAL NO.: 10/737,012
FILED: December 16, 2003
Page 15

receive at least some of the one or more quality indicators from an alternative
source to the baseband processor; and
~~provide the plurality of RF signals to the antenna system.~~